CLAIMS

We claim:

1. A method for fault resolution in a computer system, comprising:

    (a) configuring a cluster with a gateway for a network interface;

    (b) issuing an operating system ICMP echo to peer nodes in said cluster and to said gateway through said network interface in response to a heartbeat loss detection; and

    (c) analyzing a response from said echo to determine location of a fault in said cluster.

2. The method of claim 1, wherein the step of analyzing a response from said echo includes receiving said response and determining an intended recipient of said echo.

3. The method of claim 2, wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface.

4. The method of claim 2, wherein receipt of a return of said echo from said gateway for said network interface within a predefined time interval is indicative of operation of said network interface.

5. The method of claim 2, wherein absence of return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof.

6. The method of claim 1, further comprising the step of issuing an application level ping to a peer node in response to both receipt of said echo response within a predefined time interval and said heartbeat beat loss detection.

7. The method of claim 1, further comprising comparing an echo response from a target node set

5 for each network interface.

8. The method of claim 7, wherein the step of comparing an echo response from a target node set for each network interface includes criteria selected from the group consisting of: maximum availability of nodes in said network, availability of said gateway in said network, and combinations thereof.

10 9. A multiprocessor computer system, comprising:

a cluster with a gateway configured for a network interface;

an operating system ICMP echo adapted to be issued to peer nodes in a cluster and to said

gateway through said network interface in response to a heartbeat loss detection; and

a response from said echo adapted to be analyzed for location of a fault in said cluster.

15 10. The system of claim 9, wherein analysis of said response from said echo includes determination of an intended recipient of said echo.

11. The system of claim 10, wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface.

20 12. The system of claim 10, wherein receipt of a return of said echo from said gateway for said network interface within a predefined time interval is indicative of operation of said network interface.

13. The system of claim 11, wherein absence of receipt of a return of said echo from peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof.

5   14. The system of claim 9, further comprising an application level ping adapted to be issued to a peer node in response to both receipt of said echo within a predefined time interval and a heartbeat beat loss detection.

15. The system of claim 9, further comprising a comparison tool adapted to compare an echo response from a target node for each network interface.

10   16. The system of claim 15, wherein said comparison tool determines a network interface path based upon criteria selected from the group consisting of: maximum availability of nodes in said network, availability of said gateway in said network, and combinations thereof.

17. An article comprising:

a computer-readable signal-bearing medium;

15   means in the medium for issuing an operating system ICMP echo to a peer node in a cluster and to a configured cluster gateway through said network interface in response to heartbeat loss detection;

means in the medium for analyzing a response message from said echo to determine location of a fault in said cluster.

20   18. The article of claim 17, wherein the medium is selected from a group consisting of: a recordable data storage medium, and a modulated carrier signal.

19. The article of claim 17, wherein said means for analyzing a response message from said echo includes receiving said response and determining an intended recipient of said echo.

20. The article of claim 17, further comprising means in the medium for issuing an application level ping to a peer node in response to both receipt of an echo response within a predetermined time interval and a heartbeat loss detection.

21. The article of claim 17, further comprising means in the medium for comparing an echo response from a target node set for each network interface.

22. The article of claim 21, wherein the step of comparing an echo response from a target node set for each network interfaces includes criteria selected from the group consisting of: maximum availability of nodes in said network, availability of said gateway in said network, and combinations thereof.